PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT APPLICATION

Application No.:	09/683,088	Atty. Docket: BUR9-2000-0077-US1
Applicant:	Chu et al.	Today's Date: October 2, 2003
Filing Date:	November 16, 2001	Examiner: Matthew J. Song
Title:	**SINGLE REACTOR, MULTI-PRESSURE CHEMICAL VAPOR DEPOSITION FOR SEMICONDUCTOR DEVICES**	Group Art Unit: 1765
		Fax: 703-872-9310

OFFICIAL

Response Under 37 CFR 1.111 and
Response to Restriction Requirement

Amendment A

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

In response to the Office Action dated July 2, 2003, Applicants respectfully request reconsideration of the outstanding rejections and reexamination of the present application in light of the following remarks.

CERTIFICATE OF MAILING

I hereby certify that, on the date shown below, this correspondence is being:

MAIL

☐ deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant commissioner of Patents, Washington, DC 20231.

Date: OCT. 2, 2003

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☒ transmitted by facsimile to the Patent and Trademark Office.

ANTHONY J. CANALE
Name

Anthony J. Canale
Signature

REMARKS

Claims 1-20 are pending in the subject application. Claims 13-20 are withdrawn from consideration. Claims 1-12 stand rejected. It is respectfully requested that the rejected claims 1-12 be reconsidered and passed to issuance in view of this response.

Response to Restriction Requirement

In response to the Restriction Requirement, the Applicants hereby elect Group I, Claims 1-12, for continued prosecution. This election is made with traverse and without prejudice against the filing of a divisional application based on the unelected claims 13-20.

Claim Rejections – 35 U.S.C. 102(b)

The Examiner has rejected claims 1-4 and 8 under 35 U.S.C. 102(b) as being anticipated by Akbar et al. (U.S. Patent No. 5,259,918).

Akbar et al. do not anticipate or suggest Applicants' independent claim 1, and claims 2-12 dependent thereupon. The Examiner states that "Akbar et al. do[es] not disclose the intended use of the first, second and third pumping systems ... [and that] a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art."

Applicants respectfully submit that Applicants' claimed invention does result in a structural difference compared to Akbar et al. Referring to FIG. 1 of the present application, Applicants' claim 1 recites the limitations of a first pumping system 36/37, a second pumping system 31/32/33 and a third pumping system 40/41. Applicants' first and second pumping systems are capable of maintaining the vacuum pressure of reaction chamber 22 at a first and second vacuum pressure, respectively, and the third pumping system is capable of transitioning

the reaction chamber between the first and second vacuum pressures. Thus, in order to maintain and/or transition between the first and second vacuum pressures, the first, second and third pumping systems of the present invention are coupled to the reaction chamber and are capable of maintaining/transitioning the vacuum pressure during heating of the substrate in the reaction chamber. Applicants' first, second and third pumping systems are coupled to the reaction chamber so that they can affect the vacuum pressure of the reaction chamber, and Applicants' pumping systems are not isolated from the reaction chamber by, for example, a loadlock.

Referring to FIG. 4 of Akbar et al., pumping systems 108/110 and 118/120 are isolated from reaction chamber 102 by valve 114 which is shut (column 6, lines 38-39) to isolate the loadlock chamber 106 from reaction chamber 102 during heating. First pumping system 108/110 and second pumping system 118/120 are used to pump down loadlock chamber 106 to a transistion pressure so that substrates can be loaded into reaction chamber 102. Once the substrates are loaded into reaction chamber 102, valve 114 is shut to isolate the loadlock 106 from the reaction chamber 102 during processing. As such, only third pumping system 160/162/164 is coupled to the reaction chamber 102 for maintaining vacuum pressure during processing. Thus, the first and second pumping systems of Akbar et al. can not affect the pressure of reaction chamber 102 during processing of the substrates. Akbar et al. are silent on disclosing first, second and third pumping systems for affecting the vacuum pressure of a reaction chamber during processing of a substrate. Akbar et al. only disclose one pumping system 160/162/164 for affecting the vacuum pressure of reaction chamber 102.

Therefore, Applicants respectfully submit that the rejections under 35 U.S.C. 102(b) have been overcome.

Claim Rejections – 35 U.S.C. 103 (a)

The Examiner has rejected claims 5 and 11 under 35 U.S.C. 103(a) as being unpatentable over Akbar et al. (U.S. Patent No. 5,259,918) as applied to claims 1-4 and 8 above, and further in view of Zhou et al. (U.S. Patent No. 5,879,467); claims 6, 9 and 10 under 35 U.S.C. 103(a) as being unpatentable over Akbar et al. (U.S. Patent No. 5,259,918) as applied to claims 1-4 and 8 above, and further in view of Chu et al. (U.S. Patent No. 6,013,134); and, claims 7 and 12 under 35 U.S.C. 103(a) as being unpatentable over Akbar et al. (U.S. Patent No. 5,259,918) in view of Chu et al (U.S. Patent No. 6,013,134) as applied to claims 6, 9 and 10 above, and further in view of Zhou et al. (U.S. Patent No. 5,879,467).

As discussed above, Applicants believe that Akbar et al. do not anticipate, teach or suggest Applicants' independent claim 1. Thus, Akbar et al., Zhou et al. or Chu et al., individually or in combination, do not teach or suggest Applicants' claims 5-7 and 9-12.

Therefore, Applicants respectfully submit that the rejections under 35 U.S.C. 103(a) have been overcome.

Prior Art Made of Record

Applicants have reviewed the prior art made of record, Meyerson (U.S. Patent No. 5,298,452), Venkatraman et al. (U.S. Patent No. 6,083,313), Barnett et al. (U.S. Patent No. 5,783295), Markunas et al. (U.S. Patent No. 5,180,435) and Collins et al. (U.S. Patent No. 5,210,466), and respectfully submit that Applicants' independent claim 1, and claims depenendent thereupon, are not anticipated, taught or suggested by the prior made of record.

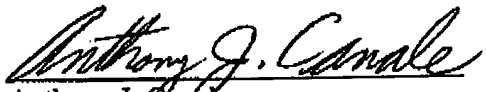
CONCLUSION

In light of the foregoing amendments and remarks, all of the claims now presented are believed to be in condition for allowance, and Applicants respectfully request that the outstanding rejections be withdrawn and this application be passed to issue at an early date.

The Examiner is urged to call the undersigned at the number listed below if, in the Examiner's opinion, such a phone conference would aid in furthering the prosecution of this application. No fee is due by virtue of this amendment. However, if the PTO determines that a fee is required, please charge Applicants' Deposit Account, 09-0456. If any extensions or fees are not accounted for, such extension is requested and the associated fee should be charged to our deposit account.

Respectfully Submitted,

For: Chu et al.,

By: 

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